U.S. Department of Commerce
National Institute of Standards and Technology
(Formerly the National Bureau of Standards-NBS)

Product Standard PS17-69
Polyethylene Sheeting
(Construction, Industrial, and Agricultural Applications)

The Product Standard (PS) 17-69, Polyethylene Sheeting (Construction, Industrial, and Agricultural Applications) was withdrawn by the U.S. Department of Commerce on January 20, 1982.

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The following standard was used to replace PS17-69: ASTM D4397, Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.

For assistance and additional information concerning the subject and related standards, contact:

ASTM International
(Formerly: American Society for Testing and Materials-ASTM)
100 Barr Harbor Road
West Conshohocken, Pennsylvania 19428-2959, USA
Telephone: 610 832 9585/-9500
Fax: 610 832 9555
www.astm.org

ASTM standards are developed under the jurisdiction and responsibility of many ASTM Committees and Subcommittees (an example: ASTM Committee D20 on Plastics, Subcommittee Committee D20.19 on Film and Sheeting (for ASTM D4397).

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The following organizations may also provide assistance and information:

Society of the Plastics Industry (SPI)
1667 K Street, NW
Washington, DC 20006, USA
Telephone: 202 974 5200
Fax: 202 296 7005
www.plasticsindustry.org

Flexible Packaging Association
971 Corporate Boulevard, Suite 403
Linthicum, MD 21090, USA
Telephone: 410 694 0800
Fax: 410 694 0900
E-mail: fpa@flexpack.org
www.flexpack.org

National Bureau of Standards

Status Report on Voluntary Product Standards

AGENCY: National Bureau of Standards; Commerce.

ACTION: Maintenance, retention, replacement, and withdrawal of certain voluntary product standards

On August 19, 1980, the Department of Commerce (Department) announced in the Federal Register (45 FR 55250-2) the status of 80 documents classified as Voluntary Product Standards. The announcement was made in accordance with the revised Procedures for the Development of Voluntary Product Standards (15 CFR Part 10). Section 10.0(b) of the Procedures specifies six criteria that must be met for the Department to sponsor the development or maintenance of a Voluntary Product Standard.

Numerous requests to retain or maintain various standards were received in response to the August 19, 1980, notice. A number of the requests specified retention of standards for fixed periods of time that have now elapsed. The current status of all such standards is indicated below.

Based on proposals from the proponent organizations identified after the following titles, the following product standards will continue to be sponsored by the Department:

PS 1-74, Construction and Industrial Plywood; American Plywood Association
PS 20-70, American Softwood Lumber Standard; American Lumber Standards Committee
PS 72-76, Toy Safety; Toy Manufacturers of America
PS 73-77, Carbonated Soft Drink Bottles; Glass Packaging Institute
TS 231, Proposed Voluntary Product Standard, Production of Carbonated Soft Drinks In Glass Bottles; National Soft Drink Association

Based on documented activity within a private standards-writing organization, the following standards will be retained by the National Bureau of Standards for the periods of time stated below to permit the orderly transfer of sponsorship of such standards from the Department to the identified organizations. The periods of time stated below shall commence from the date this notice is published in the Federal Register and supersede the periods of time stated for those standards in the August 19, 1980 notice.

PS 30-70, School Chalk; the Crayon, Water Color and Craft Institute, Inc.; 6 months
PS 36-70, Body Measurements for the Sizing of Boys' Apparel; Mail Order Association of America; 12 months
PS 42-70, Body Measurements for the Sizing of Women's Patterns and Apparel; Mail Order Association of America; 12 months
PS 45-71, Body Measurements for the Sizing of Apparel for Young Men (Students); Mail Order Association of America; 12 months
PS 46-71, Flame-Resistant Paper and Paperboard; American Society for Testing and Materials; 6 months
PS 51-71, Hardwood and Decorative Plywood; Hardwood Plywood Manufacturers Association; 12 months
PS 54-72, Body Measurements for the Sizing of Girls' Apparel; Mail Order Association of America; 12 months
PS 63-75, Latex Foam Mattresses for Hospitals; American Society for Testing and Materials; 12 months
PS 64-75, School Paste; The Crayon Water Color and Craft Institute, Inc.; 6 months
PS 65-75, Paints and Inks for Art Education in Schools; The Crayon, Water Color and Craft Institute, Inc.; 6 months
PS 67-76, Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watchcases; Jewelers Vigilance Committee; 24 months
PS 68-76, Marking of Articles Made of Silver in Combination with Gold; Jewelers Vigilance Committee; 24 months
PS 69-76, Marking of Articles Made Wholly or in Part of Platinum; Jewelers Vigilance Committee; 2 months
PS 70-76, Marking of Articles Made of Karat Gold; Jewelers Vigilance Committee; 24 months
PS 71-76, Marking of Jewelry and Novelties of Silver; Jewelers Vigilance Committee; 24 months
CS 98-62, Artists Oil Paints; Artists Equity Association, Inc.; 6 months
CS 130-60, Color Materials for Art Education in Schools; the Crayon, Water Color and Craft Insitute, Inc.; 6 months
CS 151-50, Body Measurements for the Sizing of Apparel for Infants, Babies, Toddlers and Children (for the Knit Underwear Industry); Mail Order Association of America; 12 months
R 192-63, Crayons and Related Art Materials for School Use (Types, Sizes, Packages and Colors); The Crayon, Water Color and Craft Institute, Inc.; 6 months

The following standard has been replaced by a standard being developed or published by a private standards-writing organization and, therefore, Department of Commerce sponsorship is no longer need for it:

PS 17-69, Polyethylene-sheeting (construction, industrial and agricultural applications); Society of the Plastics Industry

In the absence of any request for retention or maintenance, the following standards are withdrawn:

PS 13-69, Uncorded Slab Urethane Foam for Bedding and Furniture Cushioning
PS 15-69, Custom Contact-Molded Reinforced Polyestyer Chemical-Resistant Process Equipment
PS 23-70, Horticultural Grade Perlite
PS 24-70, Melamine Dinnerware (Alpha-Cellulose Filled) for Household Use
PS 25-70, Heavy-Duty Alpha-Cellulose-Filled Melamine Tableware
PS 27-70, Mosaic-Parquet Hardwood Slat Flooring
PS 29-70, Plastic Heat-Shrinkable Film
PS 31-70, Polystyrene Plastic Sheet
PS 34-70, Fluorinated Ethylene-Propylene (FEP) Plastic-Lined Steel Pipe and Fittings
PS 52-71, Polytetrafluorethylene (PTFE)
PS 53-72, Glass-Fiber Reinforced Polyester Structural Plastic Panels
PS 56-73, Structural Glued Laminated Timber
PS 57-73, Cellulosic Fiber Insulation Board
PS 58-73, Basic Hardboard
PS 59-73, Prefinished Hardboard Paneling
PS 60-73, Hardboard Siding
PS 62-74, Grading of Diamond Powder in Sub-Sieve Sizes
CS 136-55, Insect Wire Screening
CS 192-53, General Purpose Vinyl Plastic Film
CS 201-55, Rigid Polyvinyl Chloride Sheets
CS 227-59, Polyethylene Film
CS 245-62, Vinyl-Metal Laminates
CS 257-63, TFE-Fluorocarbon (Polytetrafluorethylene) Resin Molded Basic Shapes
CS 268-65, Hide-Trim Pattern for Domestic Cattlehides
CS 274-66, TFE-Fluorocarbon Resin Sintered Thin Coatings for Dry Film Lubrication
R2-62, Bedding Products and Components

In accordance with § 10.1(e) of the revised Procedures for the Development of Voluntary Product Standards and by agreement with the Consumer Product Safety Commission, the Department will retain sponsorship of the following Voluntary Product Standard for the period of time stated below to allow for arrangements to be made for its sponsorship by a private standards writing organization.

PS 66-75, Safety Requirements for Home Playground Equipment; 12 months

For further information contact Eric A. Vadelund, Office of Engineering Standards, National Bureau of Standards, Washington, D.C. 20234. Telephone: (301) 921-3272.

Dated: January 13, 1982.

Ernest Ambler,

Director.

[FR Doc. 82-1316 Filed 1-18-82; 8:45 am]
BILLING CODE 3510-13-M

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

DO NOT REMOVE

NBS Voluntary Product Standard

WITHDRAWN

PS 17-69

Polyethylene Sheeting (Construction, Industrial, and Agricultural Applications)

WITHDRAWN

A Voluntary Standard Developed by Producers, Distributors, and Users With the Cooperation of the National Bureau of Standards

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402
Order by SD Catalog No. C13.29:PS 17-69, Price 10 cents

U.S. DEPARTMENT OF COMMERCE

National Bureau of Standards

PRODUCT STANDARDS

Product Standards are published voluntary standards that establish (1) dimensional requirements for standard sizes and types of various products, (2) technical requirements for the product, and (3) methods of testing, grading, and marking these products. The objective is to define requirements for these products in accordance with the principal demands of the trade. *Product Standards* are published by the National Bureau of Standards of the U. S. Department of Commerce.

Development of a PRODUCT STANDARD

The Bureau's Office of Engineering Standards Services works closely with business firms, trade organizations, testing laboratories, and other appropriate groups to develop such standards. (A group interested in developing a *Product Standard* may submit a written request to the Office of Engineering Standards Services, National Bureau of Standards.) After determining that the desired standard would be technically feasible and in the public interest, a specific proposal is developed in consultation with interested trade groups and circulated for industry consideration and comment.

Subsequently, a Standard Review Committee is established to review the proposed standard for conformance with the Department of Commerce procedures. The committee includes qualified representatives of producers, distributors, and users or consumers of the product. When approved by the committee, copies of the recommended standard are distributed for consideration and acceptance. When the acceptances show general agreement by all segments of the industry, and when there is no substantive objection deemed valid by the National Bureau of Standards, the Bureau announces approval of the *Product Standard* and proceeds with its publication.

Use of a PRODUCT STANDARD

Product Standards are developed for the maximum use of industry by ensuring that producers, distributors, and users or consumers cooperate in the development of a voluntary *Product Standard*. The adoption and use of a *Product Standard* is voluntary. *Product Standards* are used most effectively in conjunction with legal instrumentalities such as building codes, purchase orders, and sales contracts. When a standard is made part of such a contract, compliance with the standard is enforceable by the buyer or the seller along with other provisions of the contract. There is *no* governmental regulation or control involved. Purchasers may order products that comply with *Product Standards* and determine for themselves that their requirements are met. More often, manufacturers refer to the standards in sales catalogs, advertising, invoices, and labels on the product. Commercial inspection and testing programs are also employed for greater effectiveness together with grade labels, hallmarks, and certificates. Such assurance of compliance promotes confidence and understanding between buyers and sellers.

EFFECTIVE DATE

Having been passed through the regular procedures of the Office of Engineering Standards Services, National Bureau of Standards, and approved by the acceptors hereinafter listed in part, this Product Standard is issued by the National Bureau of Standards, effective

December 31, 1969
(See Section 7)

Lewis M. Branscomb,
Director

Nat. Bur. Stand. (U.S.), Prod. Stand. 17–69, 20 pages (June 1970)
CODEN: XNPSA

Product Standard PS 17-69
Supersedes Commercial Standard CS 238-61

Polyethylene Sheeting

(Construction, Industrial, and Agricultural Applications)

(This voluntary standard, initiated by The Society of the Plastics Industry, Inc., has been developed under the *Procedures for the Development of Voluntary Product Standards*, published by the Department of Commerce. See section 8, *History of Project*, for further information.)

1. PURPOSE

The purpose of this Product Standard is to establish national quality requirements for polyethylene sheeting which is intended for construction, industrial, and agricultural applications. It is also intended to provide producers, distributors, and users with a basis for common understanding of this product.

2. SCOPE

This Product Standard covers polyethylene sheeting of 10 mils (0.010 inch) or less in thickness and establishes requirements for the composition, impact resistance, mechanical properties, reflectance, opaqueness (low luminous transmittance), water vapor transmission, weight, and appearance of the sheeting. Also included are tolerance requirements for the thickness, width, and length of the sheeting. Provisions for identifying polyethylene sheeting conforming to this Standard are also provided.

3. REQUIREMENTS

3.1. General—All polyethylene sheeting labeled or represented as complying with this Standard shall meet the requirements listed herein and shall be identified as specified in 6.1.

3.2. Material—The sheeting shall be made from polyethylene or modified polyethylene, such as an ethylene copolymer consisting of a major proportion of ethylene in combination with a minor proportion of some other monomer, or a mixture of polyethylene with a lesser amount of other polymers. It may contain additives or modifiers such as pigments and stabilizers.

3.3. Dimensions

3.3.1. Size—The nominal thickness, width, and length of the sheeting in each roll shall be as agreed upon by the buyer and seller. (See A3 in the appendix.)

3.3.2. Tolerances

3.3.2.1. Thickness—The thickness at any point, when measured in accordance with 4.6.1, shall be not less than 80 percent of the nominal thickness.

3.3.2.2. Width—The tolerances for widths of 1 foot or more shall be $\pm\frac{1}{8}$ inch per foot of nominal width. For all widths less than 1 foot the tolerance shall be $\pm\frac{1}{8}$ inch. The width shall be determined in accordance with 4.6.2.

3.3.2.3. Length—The length of sheeting per roll shall be within plus 3 percent to minus 1 percent of the length specified. The length shall be determined in accordance with 4.6.2.

3.4. Minimum net weight—The actual net weight of each package or roll shall be not less than the nominal net weight when determined in accordance with the formula established in 4.6.3. The nominal net weight shall in turn be the labeled net weight. (See A4 in the appendix.)

3.5. Properties

3.5.1. Color and finish—The sheeting may be natural, color tinted, translucent, or opaque. (See A3 in the appendix.) The surface finish may be plain, printed, embossed, or otherwise treated.

3.5.2.—Impact resistance—The average impact resistance shall be not less than the resistance specified in table 1 when tested in accordance with 4.6.4.

TABLE 1. *Dart drop impact resistance*[1]

Sheeting thickness	Dart drop impact resistance (minimum)
mil	*grams*
1.0	40
1.5	65
2.0	85
3.0	125
4.0	165
5.0	205
6.0	260
7.0	315
8.0	370
9.0	420
10.0	475

[1] Values for thicknesses other than those listed shall be determined by arithmetical interpolation.

3.5.3. Mechanical properties—The average tensile strength and elongation at break for all thicknesses of sheeting shall be as specified in table 2 when tested in accordance with 4.6.5.

TABLE 2. *Mechanical properties*

Mechanical properties	Direction	
	Lengthwise	Crosswise
Tensile strength, min., psi	1700	1200
Elongation, min., percent	225	350

3.5.4. Reflectance—The average 45-deg, 0-deg directional reflectance of white opaque sheeting intended for use in curing concrete shall be not less than 70 percent when determined in accordance with 4.6.6.

3.5.5. Luminous transmittance—Black sheeting intended for exclusion of light and for maximum resistance to weathering shall have an average luminous transmittance not greater than 1 percent when determined in accordance with 4.6.7. This low level of luminous transmittance indicates a high degree of opaqueness.

3.5.6. Water vapor transmission—The average water vapor transmission rate shall be not greater than 1.40 grams per 100 square inches in area per 24 hours for sheeting 1 mil in thickness, when determined in accordance with 4.6.8. The water vapor transmission for other thicknesses is inversely proportional to the thickness. Thus, the requirement for other thicknesses shall be 1.40 grams per 100 square inches per 24 hours divided by the thickness in mils. The water vapor transmission rate may also be expressed as permeance in perms (grains per square foot per hour per inch of Hg water vapor pressure differential) for sheeting of various thicknesses as shown in figure 1.

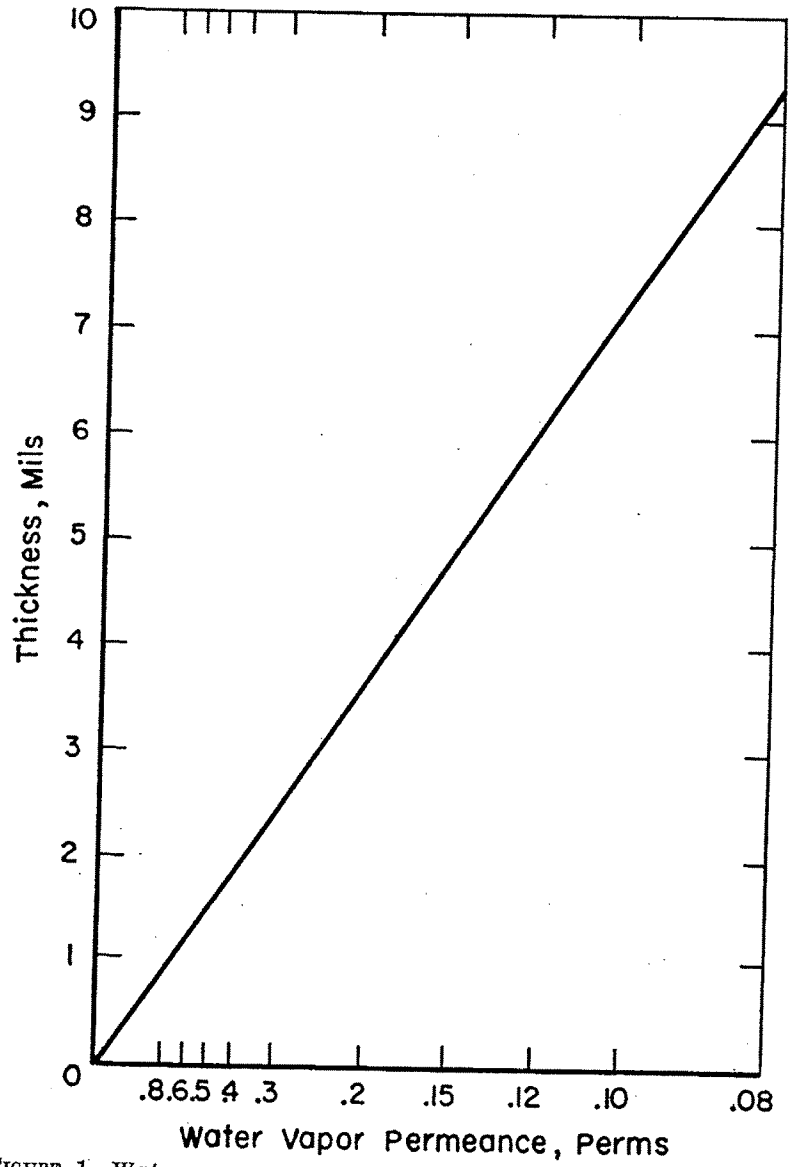

FIGURE 1. *Water vapor permeance requirements for polyethylene sheeting.*

3.6. Appearance—The sheeting shall have appearance qualities conforming with those produced by good commercial practice. It shall be as free as is commercially possible of gels, streaks, pinholes, particles of foreign matter, and undispersed raw material. There shall be no other visible defects such as holes, tears, or blisters. The edges shall be free of nicks and cuts visible to the unaided eye.

4. INSPECTION AND TEST PROCEDURES

4.1. General—The tests given herein are intended primarily for use as production tests in conjunction with manufacturing processes and inspection methods to insure the conformity of the sheeting with the requirements of this Standard.

4.2. Production inspection and testing—During the process of manufacture, the manufacturer shall make such inspections and tests as are needed to maintain the quality of the product consistently in conformance with this Standard. The manufacturer shall keep such essential records and other information to document his claim that the requirements of this Standard are met with a high degree of assurance.

4.3. Sampling—Samples for test purposes shall be taken from rolls selected at random from the total number of rolls in each shipment or lot in accordance with table 3.

TABLE 3. *Sampling for test purposes*

Rolls in shipment or lot	Rolls sampled
2– 15	2
16– 40	3
41– 65	5
66– 110	7
111– 180	10
181– 300	15
301– 500	25
501– 800	35
801–1300	50

The samples for test shall be full width and shall be cut at least three full turns but not less than 5 linear feet from either end of the sheeting on the roll. Normally about 20 square feet of sheeting is needed to make all the tests. All the tests shall be made on each sample roll. Rolls damaged in shipment shall not be selected for testing.

The specimens to be used for a particular test shall be cut from different parts of the sheeting sample (that is, they shall not be cut adjacent to one another), unless otherwise specified in the method of test.

4.4. Inspection—The samples of sheeting shall be visually inspected to determine the conformance of the sheeting with the requirements of 3.6.

4.5. Conditioning—The test specimens shall be conditioned in accordance with Procedure A of American Society for Testing and Materials (ASTM) designation D 618–61, *Standard Methods of Conditioning Plastics and Electrical Insulating Materials for Testing*,[1] and shall be tested under these conditions, unless otherwise specified.

4.6. Tests

4.6.1. Thickness—The thickness shall ordinarily be determined by the method described in 4.6.1.1. For arbitration purposes, the method described in 4.6.1.2 shall be used. The apparatus used shall be installed and operated according to the procedure recommended by the manufacturer of the apparatus.[2] When gages are used that apply a load to the sheeting, the readings shall be taken between 2 seconds and 2 minutes after the load is applied, and the load shall not create a stress in the sheeting greater than 10 psi. The apparatus shall be checked periodically with gage standards. The thicknesses of gage

[1] Later issues of the ASTM publication may be used providing the requirements are applicable and consistent with the issue designated. Copies of ASTM publications are obtainable from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.

[2] Types of thickness measuring gages are described in National Bureau of Standards Circular 585, *The Measurement of Thickness* issued January 20, 1958. Names of manufacturers are also given. This publication is available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402 for 50 cents.

standards shall be known to ±0.00001 inch and be calibrated by a qualified testing agency.

4.6.1.1. General method—This method is capable of producing measurements with a maximum error of ±0.0001 inch.

(a) **Apparatus**—A deadweight dial micrometer with a flat anvil of 1/4-inch diameter or larger in area and a 3/16-inch diameter flat surface on the head of the spindle. Unless otherwise specified herein, the micrometer shall meet the requirements of the apparatus in Method C of ASTM designation D 374–68, *Standard Methods of Test for Thickness of Solid Electrical Insulation.*[3]

(b) **Specimens**—Five specimens, at least 2 by 2 inches in area, taken uniformly across the width of the roll shall be tested. At least one set of specimens shall be measured from each roll being tested.

(c) **Procedure**—Unless otherwise specified, the procedure shall be in accordance with that in Method C of ASTM designation D 374–68. The surfaces of the anvil, spindlehead, and specimen shall be clean and dry. Place the specimen on the anvil and lower the spindlehead onto it slowly. The total load applied by the spindle shall be 4 ounces. One measurement shall be made on each specimen. The measurements of all the specimens of a sample roll shall be averaged to obtain the thickness of the film on the roll.

4.6.1.2. Arbitration method—In case of dispute, the thickness of the sheeting shall be determined in accordance with the method agreed upon by the buyer and seller. The apparatus used shall be capable of measuring the thickness to an accuracy of better than ±0.00005 inch.

4.6.2. Length and width—Measurements shall be made with a calibrated 100-foot steel tape graduated at intervals of ⅛ inch. The roll shall be extended to its full length on a flat surface and all creases and buckles removed, insofar as practical, without applying stresses that cause any significant flow. Measurements of length shall be rounded to the nearest inch. Width shall be measured to the nearest ⅛ inch at not less than 10 locations uniformly distributed along the length of the roll, and the results shall be averaged.

4.6.3. Weight—The actual weight of the package or roll shall be determined to the nearest ounce or to the nearest tenth of a pound on suitably calibrated equipment. The nominal net weight shall be calculated as follows:

$$W = T \times A \times 0.03613D$$

Where:

W = nominal net weight in pounds
T = nominal thickness in inches
A = nominal length in inches times nominal width in inches
D = density in grams per cubic centimeter as determined by ASTM designation D 1505–68, *Standard Method of Test for Density of Plastics by the Density-Gradient Technique,*[4] using three specimens
0.03613 = factor for converting g/cm³ to lb/in³

[3] See footnote 1, page 4.
[4] See footnote 1, page 4.

4.6.4. **Impact resistance**—The impact resistance shall be determined in accordance with ASTM designation D 1709–67, *Standard Methods of Test for Impact Resistance of Polyethylene Film by the Free Falling Dart Method*,[5] using Method A for sheeting less than 7 mils in thickness and Method B for sheeting 7 mils and greater in thickness. Ten test specimens shall be used to determine the conformance of the sheeting with the requirements of 3.5.2.

4.6.5. **Tensile properties**—The tensile properties of polyethylene sheeting shall be determined in accordance with Method A in ASTM designation D 882–67, *Standard Methods of Test for Tensile Properties of Thin Plastic Sheeting*,[5] using 10 specimens for each direction. The thickness of the specimens shall be measured in accordance with 4.6.1.

4.6.6. **Reflectance**—The 45-deg, 0-deg directional reflectance shall be measured in accordance with ASTM designation E 97–55 (1965), *Standard Method of Test for 45-Deg, 0-Deg Directional Reflectance of Opaque Specimens by Filter Photometry*,[5] using five specimens and the procedure described in E 97–55 for paper.

4.6.7. **Luminous transmittance**—The luminous transmittance shall be determined in accordance with ASTM designation D 2103–67, *Standard Specification for Polyethylene Film and Sheeting*,[5] using five test specimens.

4.6.8. **Water vapor transmission**—The water vapor transmission rate shall be determined in accordance with Method E of ASTM designation E 96–66, *Standard Methods of Test for Water Vapor Transmission of Materials in Sheet Form*,[5] using four specimens. When this procedure is used, grams per 24 hours per square meter shall be multiplied by 0.0645 and by the thickness of the sheeting in mils to convert to grams per 24 hours per 100 square inches per mil in thickness. Perms per mil thickness are obtained by multiplying grams per 24 hours per square meter by 0.0343 and multiplying by the thickness in mils, or by multiplying grams per 24 hours per 100 square inches by 0.532 and multiplying by the thickness in mils.

5. DEFINITIONS

The plastics terminology used in this Standard is in accordance with the definitions given in ASTM designation D 883–69, *Standard Nomenclature Relating to Plastics*.[5]

6. IDENTIFICATION

6.1. **Marking**—Each package or roll shall be marked with the nominal width, length, and thickness of the sheeting and the nominal net weight of the package or roll.

6.2. **Labels and literature**—In order that purchasers may identify products complying with all requirements of this voluntary Product Standard, producers choosing to produce such products in conformance with this voluntary Standard may include a statement in conjunction with their name and address on labels, invoices, sales literature, and the like. The following statement is suggested when sufficient space is available:

[5] See footnote 1, page 4.

This sheeting conforms to all of the requirements established in Product Standard PS 17–69, developed cooperatively with the industry and published by the National Bureau of Standards under the voluntary Product Standards procedures of the U.S. Department of Commerce. Full responsibility for the conformance of this product with the standard is assumed by (name and address of producer or distributor).

The following abbreviated statement is suggested when available space on labels is insufficient for the full statement:

Conforms to PS 17-69 (name and address of producer or distributor).

7. EFFECTIVE DATE

The effective date of a voluntary Product Standard is the date upon which reference to the Standard may be made by producers, distributors, users and consumers, and other interested parties. Compliance by producers with the requirements of a Product Standard may not actually occur until some time after the effective date. Products shall not be labeled or otherwise described as conforming to a Product Standard until such time as all applicable requirements established in the Standard are met. The effective date of this Standard is December 31, 1969.

8. HISTORY

8.1. On June 17, 1960, The Society of the Plastics Industry, Inc., requested the assistance of the Department of Commerce in the establishment of a Commercial Standard for polyethylene sheeting. Standard quality requirements were developed with the assistance of the industry, and the Standard was published October 6, 1961, as Commercial Standard CS 238–61.

8.2. Current revision—A revision of CS 238-61 was requested by The Society of the Plastics Industry, Inc., October 1966. The revision was necessary to update the Standard to reflect advancements in technology which had occurred since the Standard was published in 1961. The thickness requirement was changed to specify that the thickness of the sheeting at any point shall not be less than 80 percent of the nominal thickness. The requirement was added that the actual net weight shall be not less than the nominal net weight, and that the nominal net weight shall be the labeled net weight. A number of changes were also made to the Standard to improve the clarity and accuracy of the test methods.

The proposed revision was reviewed by the Office of Engineering Standards Services and the Standing Committee. Adjustments were made to the satisfaction of all groups involved, and the Recommended Product Standard, TS 148, *Polyethylene Sheeting (Construction, Industrial, and Agricultural Applications)*, was circulated to the trade for acceptance on May 12, 1969.

On Jan. 7, 1970, the Office of Engineering Standards Services announced that acceptances had been received representing a satisfactory majority of the industry. Accordingly, the Product Standard, designated as PS 17–69, *Polyethylene Sheeting (Construction, Industrial, and Agricultural Applications)* became effective December 31, 1969.

Technical Standards Coordinator:
D. R. Stevenson, Product Standards Section, Office of Engineering Standards Services, National Bureau of Standards, Washington, D. C.

9. STANDING COMMITTEE

The following individuals comprise the membership of the Standing Committee which is to review all revisions proposed to keep this Standard abreast of progress. Comments concerning the Standard and suggestions for revision may be addressed to any member of the committee or to the Office of Engineering Standards Services, National Bureau of Standards, U.S. Department of Commerce, which acts as Secretary for the committee.

Representing Producers

C. J. B. Thor, Visqueen Division, Ethyl Corporation, P.O. Box 1548, Terre Haute, Indiana 47808 (Chairman)
M. W. Sullivan, Monsanto Company, N. 7th Street & Monroe Avenue, Kenilworth, New Jersey 07033
J. P. McGarvey, Sinclair-Koppers Company, Frankfort Road, Monaca, Pennsylvania 15601

Representing Distributors

Jerry Dorfman, Protective Lining Corporation, 601 39th Street, Brooklyn, New York 11203
Richard Ruane, Almac Plastics of Maryland, Inc., 6602 Landay Avenue, Baltimore, Maryland 21203
Joseph Such, The Such Company, P. O. Box "I", Lincoln, Rhode Island, 02864

Representing Users

Irving V. Bloom, Department of Navy, Naval Facilities Engineering Command, Washington, D. C. 20390
Willard E. Bryant, National Association of Home Builders, 1625 L Street, N. W., Washington, D. C. 20036
Mervin W. Dizenfeld, Department of Housing and Urban Development, 451 7th Street, S. W., Washington, D. C. 20411
Mayhew M. Clark, Materials Department, Ethyl Corporation, 1021 Emerald Lane, Naperville, Illinois 60540 (Representing American Society of Agricultural Engineers)
Ancle Tester, John Tester & Son, Inc., P.O. Box L–144, Clinton, Maryland, 20735 (Representing Associated General Contractors of America)

10. ACCEPTORS

The manufacturers, distributors, users, and others listed below have individually indicated in writing their acceptance of this Product Standard prior to its publication. The acceptors have indicated their intention to use the Standard as far as practicable but reserve the right to depart from it when necessary. The list is published to show the extent of recorded public support for the Standard.

ASSOCIATIONS
(General Support)

American Society of Agricultural Engineers, Naperville, Illinois
American Institute of Supply Associations, Inc., The, Washington, D. C.
National Association of Home Builders, Washington, D. C.
Society of the Plastics Industry, Inc., The, New York, New York

PRODUCERS

Continental Extrusion Corporation, Garden City, New York
Crystal-X-Corporation, Darby, Pennsylvania
Darling Display Division, Greneker Corporation, Coldwater, Michigan
Delta-American Corporation, Wheeling, Illinois
Ethyl Corporation, Visqueen Division, Baton Rouge, Louisiana
Extrudo Film Corporation, Lake Zurich, Illinois
Filmcraft-Chicago, Chicago, Illinois
Firestone Plastics Company, Division of The Firestone Tire & Rubber Company, Pottstown, Pennsylvania
Flex-O-Glass, Inc., (Warp Brothers) Chicago, Illinois
Fortune Plastics, Inc., Old Saybrook, Connecticut
Jet Plastics, Los Angeles, California
Plasti Form, Inc., Phillipsburg, New Jersey
Protective Lining Corporation, Brooklyn, New York
Rex Plastics, Inc., Thomasville, N. C.
Sinclair-Koppers Company, Pittsburgh, Pennsylvania
Thielex Plastics Corporation, The, Piscataway, New Jersey
Union Carbide Corporation, Plastic Films, Wayne, New Jersey
Vanpak Products, Inc., Tomah, Wisconsin

DISTRIBUTORS, USERS, AND GENERAL INTEREST

Agsten, H. B., & Sons, Inc., Charleston, West Virginia
American Builders Supply Company, Louisville, Kentucky
American Standards Testing Bureau, Inc., New York, New York
Beal, Depeter, Ward, Inc., Portland, Maine
Brace Mueller Huntley, Inc., Syracuse, New York
California Testing Laboratories, Inc., Los Angeles, California
Camlet, J. Thomas, & Son, Architects & Engineers, Clifton, New Jersey
Cannon & Mullen, Architects, Salt Lake City, Utah
Carlon Products Division Continental Oil Company, Aurora, Ohio
Chastain & Tindel, Inc., Atlanta, Georgia
Dallas Wholesale Builders Supply, Inc., Dallas, Texas
Dalton-Dalton-Little, Cleveland, Ohio
Daniel Engineers, Greenville, South Carolina
Day & Zimmermann, Inc., Philadelphia, Pennsylvania
Dollar, Bonner & Funk, Wilmington, Delaware
Froehling & Robertson, Inc., Richmond, Virginia
Inmont Corporation, Bound Brook, New Jersey
Kaufman Glass Company, Wilmington, Delaware
Keith Haag & Associates, Cuyahoga Falls, Ohio
Lumbermens Merchandising Corporation, Wayne, Pennsylvania
Mason Supplies, Inc., Los Angeles, California
McKee, Arthur G., & Company, Hibbing, Minnesota
Omaha Testing Laboratories, Inc., Omaha, Nebraska
Pittsburgh Testing Laboratory, Pittsburgh, Pennsylvania
Research & Library Service, Swarthmore, Pennsylvania
Reynolds Metals Company, Park Ridge, Illinois
Rounds & Porter Company, Wichita, Kansas
Soil Engineering & Service Company, El Paso, Texas
Soule, H. M., Company, Inc., Pawtucket, Rhode Island
Southern Testing Laboratories, Inc., Birmingham, Alabama
United Co-Operatives, Inc., Alliance, Ohio
United Engineers & Constructors, Inc., Philadelphia, Pennsylvania
United Plastic Film Corporation, Cleveland, Ohio
U. S. Testing Company, Hoboken, New Jersey
Wagner Awning & Manufacturing Company, The, Cleveland, Ohio
Walton Building Products, Inc., Coral Gables, Florida
Wank, Adams & Slavin, Office of Fellheimer & Wagner, New York, New York
Wigton-Abbott Corporation, Plainfield, New Jersey
Woodward, Wight & Company, Ltd., New Orleans, Louisiana

FEDERAL GOVERNMENT

Army, Departent of the, Office of the Chief of Engineers, Washington, D. C.
General Services Administration, Federal Supply Service, Standardization Division, Washington, D. C.
Health, Education & Welfare, Deparment of, Division of Procurement & Supply Management, Washington, D. C.
Justice, Department of, Bureau of Prisons, Washington, D. C.
Navy, Department of the, Naval Facilities Engineering Command, Washington, D. C.
Interior, Department of, National Park Service, Washington, D. C.

APPENDIX

Supplemental Information

A1. Polyethylene is generally resistant to fungi and decay caused by wetting and drying. If any unusual decay resistance is required, it is recommended that the buyer consult with manufacturers regarding this problem.

A2. It is recommended that users who need better weather resistance than that afforded by natural polyethylene, use the black pigmented variety or compositions developed to provide increased weather resistance.

A3. Polyethylene sheeting is made in a variety of colors, opaquenesses, translucencies, and dimensions. It is recommended that manufacturers be consulted for information on the varieties available.

A4. The following table gives a number of examples of results from the use of the weight calculation specified in 3.4. The minimum net weight is calculated to the nearest 0.1 pound.

TABLE A1. *Examples of weight calculation*

Film thickness	Film density	Net weight (minimum)
inches	*gr/cc*	*lb/1000 sq. ft.*
0.002	0.920	9.6
	.950	9.9
	.985	10.2
.004	.920	19.1
	.950	19.8
	.985	20.5
.006	.920	28.7
	.950	29.6
	.985	30.7

WITHDRAWN

ACCEPTANCE OF PRODUCT STANDARD

PS 17-69, POLYETHYLENE SHEETING (CONSTRUCTION, INDUSTRIAL, AND AGRICULTURAL APPLICATIONS)

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this Product Standard.

Date_____

Office of Engineering Standards Services
National Bureau of Standards
U.S. Department of Commerce
Washington, D.C. 20234

Gentlemen:

We believe that this Product Standard constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production[1] distribution[1] purchase[1] testing[1]

of this commodity.

We reserve the right to depart from the standard as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer_____
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer_____

Organization_____
(Fill in exactly as it should be listed)

Street address_____

City, State, and Zip Code_____

[1] Underscore the applicable word. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

//

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—A Product Standard contains requirements which are voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and user or consumer and should not be confused with any plan of governmental regulation or control. The National Bureau of Standards has *no* regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions soon become established as trade customs, and are made effective through incorporation into sales contracts, labels, invoices, and the like.

2. *The Responsibility of the Acceptor.*—The purpose of a Product Standard is to establish, for specific items, nationally recognized sizes, grades, material requirements or performance criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the standard, where practicable, in the production, distribution, use or consumption of the product in question.

3. *The Role of the Department of Commerce.*—The National Bureau of Standards, acting under delegation from the Department of Commerce, provides (1) the function of unbiased coordinator to bring all interested parties together for the mutually satisfactory development of a voluntary standard, (2) such assistance and advice as past experience with similar programs may suggest, (3) the determination of acceptability on the part of producers, distributors, and users or consumers, and (4) the publication of the standard for the information and guidance of buyers and sellers of the product.

THE NATIONAL ECONOMIC GOAL
Sustained maximum growth in a free market economy, without inflation, under conditions of full employment and equal opportunity

THE DEPARTMENT OF COMMERCE
The historic mission of the Department is "to foster, promote and develop the foreign and domestic commerce" of the United States. This has evolved, as a result of legislative and administrative additions, to encompass broadly the responsibility to foster, serve and promote the nation's economic development and technological advancement. The Department seeks to fulfill this mission through these activities:

MISSION AND FUNCTIONS OF THE DEPARTMENT OF COMMERCE

"to foster, serve and promote the nation's economic development and technological advancement"

Participating with other government agencies in the creation of national policy, through the President's Cabinet and its subdivisions.

- **Cabinet Committee on Economic Policy**
- **Urban Affairs Council**
- **Environmental Quality Council**

Promoting progressive business policies and growth.

- **Business and Defense Services Administration**
- **Office of Field Services**

Assisting states, communities and individuals toward economic progress.

- **Economic Development Administration**
- **Regional Planning Commissions**
- **Office of Minority Business Enterprise**

Strengthening the international economic position of the United States.

- **Bureau of International Commerce**
- **Office of Foreign Commercial Services**
- **Office of Foreign Direct Investments**
- **United States Travel Service**
- **Maritime Administration**

Assuring effective use and growth of the nation's scientific and technical resources.

- **Environmental Science Services Administration**
- **Patent Office**
- **National Bureau of Standards**
- **Office of Telecommunications**
- **Office of State Technical Services**

Acquiring, analyzing and disseminating information concerning the nation and the economy to help achieve increased social and economic benefit.

- **Bureau of the Census**
- **Office of Business Economics**

NOTE: This schematic is neither an organization chart nor a program outline for budget purposes. It is a general statement of the Department's mission in relation to the national goal of economic development.

JULY 1969

U.S. DEPARTMENT OF COMMERCE • Maurice H. Stans, Secretary

NATIONAL BUREAU OF STANDARDS • Lewis M. Branscomb, Director

The National Bureau of Standards[1] was established by an act of Congress March 3, 1901. Today, in addition to serving as the Nation's central measurement laboratory, the Bureau is a principal focal point in the Federal Government for assuring maximum application of the physical and engineering sciences to the advancement of technology in industry and commerce. To this end the Bureau conducts research and provides central national services in four broad program areas. These are: (1) basic measurements and standards, (2) materials measurements and standards, (3) technological measurements and standards, and (4) transfer of technology.

The Bureau comprises the Institute for Basic Standards, the Institute for Materials Research, the Institute for Applied Technology, the Center for Radiation Research, the Center for Computer Sciences and Technology, and the Office for Information Programs.

THE INSTITUTE FOR BASIC STANDARDS provides the central basis within the United States of a complete and consistent system of physical measurement; coordinates that system with measurement systems of other nations; and furnishes essential services leading to accurate and uniform physical measurements throughout the Nation's scientific community, industry, and commerce. The Institute consists of an Office of Measurement Services and the following technical divisions:

Applied Mathematics—Electricity—Metrology—Mechanics—Heat—Atomic and Molecular Physics—Radio Physics[2]—Radio Engineering[2]—Time and Frequency[2]—Astrophysics[2]—Cryogenics.[2]

THE INSTITUTE FOR MATERIALS RESEARCH conducts materials research leading to improved methods of measurement standards, and data on the properties of well-characterized materials needed by industry, commerce, educational institutions, and Government; develops, produces, and distributes standard reference materials; relates the physical and chemical properties of materials to their behavior and their interaction with their environments; and provides advisory and research services to other Government agencies. The Institute consists of an Office of Standard Reference Materials and the following divisions:

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THE INSTITUTE FOR APPLIED TECHNOLOGY provides technical services to promote the use of available technology and to facilitate technological innovation in industry and Government; cooperates with public and private organizations in the development of technological standards, and test methodologies; and provides advisory and research services for Federal, state, and local government agencies. The Institute consists of the following technical divisions and offices:

Engineering Standards—Weights and Measures—Invention and Innovation—Vehicle Systems Research—Product Evaluation—Building Research—Instrument Shops—Measurement Engineering—Electronic Technology—Technical Analysis.

THE CENTER FOR RADIATION RESEARCH engages in research, measurement, and application of radiation to the solution of Bureau mission problems and the problems of other agencies and institutions. The Center consists of the following divisions:

Reactor Radiation—Linac Radiation—Nuclear Radiation—Applied Radiation.

THE CENTER FOR COMPUTER SCIENCES AND TECHNOLOGY conducts research and provides technical services designed to aid Government agencies in the selection, acquisition, and effective use of automatic data processing equipment; and serves as the principal focus for the development of Federal standards for automatic data processing equipment, techniques, and computer languages. The Center consists of the following offices and divisions:

Information Processing Standards—Computer Information—Computer Services—Systems Development—Information Processing Technology.

THE OFFICE FOR INFORMATION PROGRAMS promotes optimum dissemination and accessibility of scientific information generated within NBS and other agencies of the Federal Government; promotes the development of the National Standard Reference Data System and a system of information analysis centers dealing with the broader aspects of the National Measurement System, and provides appropriate services to ensure that the NBS staff has optimum accessibility to the scientific information of the world. The Office consists of the following organizational units:

Office of Standard Reference Data—Clearinghouse for Federal Scientific and Technical Information[3]—Office of Technical Information and Publications—Library—Office of Public Information—Office of International Relations.

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[1] Headquarters and Laboratories at Gaithersburg, Maryland, unless otherwise noted; mailing address Washington, D.C. 20234.

[2] Located at Boulder, Colorado 80302.

[3] Located at 5285 Port Royal Road, Springfield, Virginia 22151.

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*Difference in price is due to extra cost of foreign mailing.

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Technical Notes. This series consists of communications and reports (covering both other agency and NBS-sponsored work) of limited or transitory interest.

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